

Claims

1. A fuel cell power plant adapted to store energy which is removed from the associated fuel cell stack during transition from being not operating to operating, and vice versa, comprising:

5 an energy storage system associated with said fuel cell power plant, said energy storage system responsive to electrical output provided thereto to store corresponding energy;

10 a controller interconnected with said fuel cell stack and responsive to signals received by said controller to cause said fuel cell stack to start up and to cause said fuel cell stack to shut down; and

15 storage control means operable by said controller, during a transition selected from (a) startup of said fuel cell power plant or (b) shutdown of said fuel cell power plant to extract, in the form of electrical output, energy generated by said fuel cell stack, said electrical output being provided to said energy storage device, thereby limiting the maximum average voltage in the fuel cells of said fuel cell stack during said transition.

2. A power plant according to claim 1 wherein:

5 said storage control means comprises an inductor in series with a unilaterally conducting device extending from one electric output of said fuel cell stack to one input of said energy storage system and an electronic switch connected from the juncture of said inductor with said unilaterally conducting device to both a second electric output terminal of said fuel cell stack and a second terminal of said energy storage system; and

10 said electronic switch is cyclically gated on and off by a signal from said controller.

3. A power plant according to claim 1 wherein:
said storage control means comprises an inductor in series
with a unilaterally conducting device extending from one electric
output of said fuel cell stack to one input of said energy storage
5 system and an electronic switch connected from the juncture of said
inductor with said unilaterally conducting device to both a second
electric output terminal of said fuel cell stack and a second terminal
of said energy storage system; and
said electronic switch is cyclically gated on and off by a
10 signal from said controller.

4. A power plant according to claim 1 wherein:
said energy storage system comprises an electric battery.

5. A power plant according to claim 4 wherein:
said electric battery is disposed on a vehicle powered by said
power plant.

6. A power plant according to claim 1 wherein:
said energy storage system comprises a capacitor.